

OLDMAN BOILER WORKS,
OFFICE/MACHINE SHOP
32 Illinois Street
Buffalo
Erie County
New York

HAER No. NY-272-B

HAER
NY
15-BUF
41B-

PHOTOGRAPHS

WRITTEN HISTORIC^{AL} AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

Northeast Region

Philadelphia Support Office

U.S. Custom House

200 Chestnut Street

Philadelphia, P.A. 19106

HISTORIC AMERICAN ENGINEERING RECORD

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Location:

32 Illinois Street
Buffalo, Erie County
New York

UTM: 17.673540.4748850

Quad: Buffalo SE, New York

Date of Construction:

1918

Architect:

W.H. Zawadzki

Present Owner:

Edward Berger dba Oldman Boiler
Works

Present Use:

Office and Machine shop

Significance:

The building contains a number of early to mid-20th Century metal-cutting machine tools. This equipment was used in conjunction with Oldman Boiler Works' business of repairing steam generators as well as for manufacturing the firm's patented fairlead that was used on many Great Lakes vessels. While the office section has been altered extensively, the tool room retains much of its original integrity.

Project Information:

This building will be demolished for construction of the Crossroads Arena. As a mitigative measure, documentation to HAER standards was stipulated as part of negotiations among several parties including the NYS Urban Development Corporation and the NYS Office of Parks, Recreation, and Historic Preservation.

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Description of Building

The combined office and machine shop is appended to the south side of the 1907 boiler shop. The frontage on Illinois Street is 50' while the length is 100'. In terms of its building materials, the office/machine shop consists of steel and frame composite construction. There are steel columns in the south wall as well as the interior. These members carry transverse beams to support the roof and the skylight over the machine shop. The height of the shop area is 20'6" to the base of the skylight. The floor of the half-story attic over a portion of the tool room is tied in to the westernmost line of columns. The floor of the office area occupying the second floor at the east end of the building is carried on a smaller column and beam. There is no north wall: the south wall of the 1907 boiler shop serves as a party wall for both buildings. The estimated cost of the building was \$10,000.¹

The roofline is exceedingly irregular. It is flat over most of the machine shop area, save for the central skylight and a doorway for access to the roof. At the western end of the building the roof slope rises to accommodate the half-story attic. The profiles of the spaces housing the original office on the second floor as well as a higher billing office addition are evident at the eastern end of the building.

The exterior as well as the interior of the office/machine shop have been modified to some extent. The first floor of the east elevation originally featured two pair of 10' double wood and glass doors for vehicular access to the receiving and shipping department. These large doors are no longer extant. The entryway and windows have been relocated. The east exterior of the first floor has been altered by the addition of decorative brickwork courses extending somewhat above sidewalk level to a concrete cap, vinyl siding, and a metal awning with wood shingle roofing. Asbestos shingles painted blue cover the exterior wood cladding above the canopy on the east elevation as well as the entire visible south and west elevations. A number of the window openings have been covered. The interior of the office areas was remodeled extensively during the late 1940s and again in the 1970s.² The height of the skylight also appears to have been lowered, and its original rectangular profile as been altered to a gabled form.

Description of Machinery

The machine shop area contains a number of pieces of equipment for removing metal from workpieces by means of single-point cutting tools, multiple-tooth rotary cutters, or grinding wheels.

A. 42" side head vertical boring mill by King Machine Tool Co. of Cincinnati, Serial No. 1029, Lot No. 132 with 15hp.

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General Electric induction motor operating on 60-cycle current. The features of this machine date from the 1920s.³

B. 24" standard shaper by Cincinnati Shaper Co. with 7.5hp @ 1800 rpm Sterling Electric Co. motor and rubber belts running in grooved pulleys. Speed and feed tables indicate that at 550 rpm the machine was capable of six different cutting speeds (10-129 strokes/minute) and eight different feeds (.010-.170). Patent numbers on this machine range from 1,739,902 to 2,357,194. Oldman Boiler Works apparently acquired this machine in 1947. The 24" dimension refers to the length of the stroke made by the arm carrying the cutting tool. The arm can be raised or lowered a total of 7". The maximum vertical travel of the head is 13".⁴

C. Overarm "3H" heavy duty milling machine by R.K. LeBlond Manufacturing Co. of Cincinnati, Serial No. 1499. The 16" table has a travel of 9". The vertical distance between the table and the center of the arbor is 18". It has a 5hp @ 1735 rpm 60-cycle General Electric Motor (No.5K254D104). The motor is connected through rubber belting running through grooved steel pulleys to a speed reducer by Drive-All Manufacturing Co., of Detroit (No.309288). The speed reducer is in turn connected through flat leather belting to the 3-step pulley of the milling machine.⁵

D. Lathe by R.K. LeBlond Manufacturing Co. with 15hp @ 725 rpm Westinghouse induction motor (Model 212343A). This machine tool is equipped for turning, screw cutting, and boring. It is 16'6" in overall length. For turning it can accommodate a workpiece approximately 10' 8" long between the centers in the headstock and tailstock and with a swing of approximately 21" (diameter as measured from tailstock center). For boring the length limit is 5' 4".

E. Lathe by Sidney Machine Tool Co. of Sidney, Ohio with 2hp @ 1400 rpm 25-cycle motor of undetermined manufacture. Rubber belts in grooved steel pulleys run from the motor to a speed reducer of undetermined manufacture. The speed reducer is in turn connected by flat leather belting to the 3-step pulley on the headstock of the lathe. The Sidney lathe is smaller than the LeBlond model. It can take a workpiece approximately 5' long between centers with a swing of approximately 16". The tool carriage is fed along a single lead screw.

F. Columbia vertical drill press by Myers Machine Tool Co. with 3/4hp @ 1425 rpm induction motor by Delta Manufacturing Co. of Milwaukee (Q5033).

G. 21" vertical drill press by Buffalo Forge Co. with 5hp @ 750 rpm motor of undetermined manufacture. Drive arrangements consist of rubber belting running in grooved steel pulleys between the motor and the shaft of a 4-step pulley at the base of the machine. A flat leather belt connects the base pulley with a 4-step pulley at the top of the drill press. Diameters of the cone pulley steps range from 9" to 4". The 21' dimension refers to the diameter of an imaginary circle to the center of which the machine

is capable of drilling. This model can drill holes up to 1 1/2" in diameter. It features 8 spindle speeds from 368 rpm to 14.3 rpm, 3 power feeds (.011, .0072, and .0047 per spindle revolution) with both hand and ratchet lever feeds.⁶

H. Bolt threader by Landis Machine Co. of Waynesboro, PA with 5hp @ 705 rpm General Electric motor (Serial No. 403586).

I. "Pipe Master" with autogrip chuck by Oster Mfg. Co. of Cleveland (Catalog No. 502MS, Serial No. 1597). This machine runs off shop current.

J. Weld strength tester fabricated by Oldman Boiler Works. This machine represents an example of the shop "kinks" devised by skilled metal-trades craftsmen to solve specific problems internally.

K. Power hack saw by W. Robertson Machine & Foundry Co. of Buffalo. This "improved" Model No. 5 is dated 1912. The motor has been detached.

L. Metal band saw by Wells Manufacturing Co. of Three Rivers, Michigan (Type 5-M-42, Serial No. 2510) with 1/4hp motor by Dayton Electric Manufacturing Co. of Chicago.

M. Cadet double wheel grinder by Standard Electric Tool Co. of Cincinnati. A 1hp @1500 rpm motor is situated atop a pedestal and between a pair of abrasive grinding wheels sharing a common mandrel.

N. Double wheel grinder by Hammond Machinery Co. of Kalamazoo, Michigan (Model 7, Serial No. 6028) with 1/2hp, 60-cycle motor. The diameter of the grinding wheels is approximately 7".

O. Craftsman drill press by Sears, Roebuck and Co. with 1/3 hp Leland motor.

P. Cincinnati double wheel grinder by Cincinnati Electrical Tool Co. (Type KOAPY, Model 101) with 1 hp @ 1725 rpm motor.

Q. Double wheel grinder by Black & Decker. This small unit is mounted on a column north of the LeBlond lathe.

Significance of the Building

The office/machine shop is a functional adjunct of Oldman Boiler Works' 1907 shop and its 1951 addition. Local architect, W.H. Zawadzki, who was responsible for the 1907 shop also designed the 1918 building. The tool room section has retained its original function and its architectural integrity. However, this structure's principal claim to historic and engineering significance must rest with its complement of machine tools and the specific use to which they were put.

Significance of the Machinery

As a collection the shop tools represent standard designs intended for jobbing work rather than mass production. In terms of their drives, gearing, bearings, lubrication, speeds, feeds,

and overall capabilities, the majority of the equipment reflects mechanical engineering and machine design principles current during the early to mid-20th century.⁷

On the state and national levels, these tools may be considered significant because of their association with Oldman's patented fairlead which facilitated mooring operations for Great Lakes vessels. The company's initial investment in machine tools was rather modest. A 1922 inventory disclosed only two items that would qualify as machine shop equipment: an unidentified 18" lathe and the Landis bolt cutter.⁸ By 1947 Oldman had added the LeBlond and Sidney lathes (neither of which appears to have an 18" swing), the Buffalo Forge drill press, and the Cincinnati shaper. By 1950 the King boring mill and the LeBlond miller were also present along with the Robertson power hack saw, and three double-wheel grinders.⁹

Since a number of these machine tools were purchased during the years around the second world war when Oldman was branching out to include fairlead manufacturing at Illinois Street, it seems likely that the shop's capabilities were improved as part of the overall diversification program. Oldman boiler works continued to produce fairleads until approximately 1989. The patented devices were installed on numerous new and retrofitted lake vessels during the post-war years.

On the local level the most historically significant equipment is that associated with Buffalo-based machinery makers. The Buffalo Forge Company was established in 1878 to produce gear-driven blowers for portable blacksmith forges. The company went on to build a national reputation on the basis of air-handling equipment, and Willis H. Carrier was chief engineer from 1902-1915. However, the firm's product line also included machine tools for metal fabricators.¹⁰ The 21" drill press represents one of the standard designs from the 1920s. Buffalo Forge has now ceased production of these lines.

The W. Robertson Machine & Foundry Company, by contrast, was a much smaller local business with a very specific market niche. A 1912 patent on a power hack saw established a position which the company maintained through 1971. Initial operations were conducted from the proprietor's residence at 32 Greenfield Street. After 1917 the company relocated to premises at 56-58 Rano Street. The specimen at Oldman Boiler Works appears to a relatively early model. Slight changes in the name of the company suggest that it was produced at Rano Street.¹¹

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NOTES

1. Permit #53584, January 30, 1918, Plans and Permits, Buffalo City Hall (hereafter cited as BCH). Drawing No.182-B, "Office, Tool Room," (October 6, 1947); Drawing No.500-A, "Plant Layout," (October 6, 1947); Drawing No.500-B, "Plant Layout," (May 9, 1950); Drawing No.5012-C, "Section - Office and Tool Room," (November 16, 1948), Oldman Boiler Works Papers, BECHS.
2. Drawing No.5013-C, "Office Floor Plan," (April 2, 1948); Drawing No.184-B, "Office Section," (August 17, 1948), Oldman Boiler Works Papers, BECHS; Permit #E04845, July 11, 1977; Permit #P1641, July 12, 1977, Plans and Permits, BCH.
3. "Feedbox for Side Head Machine," (August 14, 1924); "Drive Diagram - 42" Side Head Machine," (March 17, 1926); "Elevating and Rapid Traverse - 42" Machine," (March 15, 1929); "Side Head - 42" Machine," (March 27, 1929); "Initial Drive - 42" Machine," (April 17, 1930), King Machine Tool Company Drawings, Oldman Boiler Works Papers, BECHS.
4. Drawing No.26959, "24 Inch Standard Shaper," (n.d.), Cincinnati Shaper Co. Drawings; R.L. Crane Machinery Company to Oldman Boiler Works regarding Order No. 23792, Cincinnati Shaper, October 25, 1947, Oldman Boiler Works Papers, BECHS.
5. Drawing No.3700, "Spindle and Details - No.3H Plane and Universal Milling Machine," R.K. LeBlond Machine Tool Co.[sic], (July 19, 1916). In 1953 the manufacturer advised its customers via the Buffalo sales agent that they no longer furnished repair parts for this machine. D.B. Symmonds, Jr., Buffalo Machinery Co., Inc. to E.C. Scheeler, Oldman Boiler Works, July 7, 1953, Oldman Boiler Works Papers, BECHS.
6. "Buffalo Forge Company: Forges, Blowers, Metal Working Machines, Wood-Workers, Drills," Catalogue No.801-A, 1929: 24, Buffalo Forge Company, Vertical File: Manufacturers - B, BECHS.
7. On machine tool history and design in general see L.T.C. Rolt, *A Short History of Machine Tools* (Cambridge, MA: MIT Press, 1965), 214-44; Robert S. Woodbury, "History of the Milling Machine: A Study in Technical Development," in *Studies in the History of Machine Tools*, ed. Robert S. Woodbury (Cambridge, MA: MIT Press, 1972), 58-81; *Metalworking: Yesterday and Tomorrow* (New York: McGraw-Hill Publications Company, 1978), 77-74.
8. William J. Gunnell to Oldman Boiler Works, "Oldman Boiler Works, Fixed Assets and Marine Welding Co. Fixed Assets," October 28, 1922, Oldman Boiler Works Papers, BECHS.

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9. See note 1 above.
10. Buffalo Forge materials, Buffalo Forge Company, Vertical
File: Manufacturers - B, BECHS.
11. *Buffalo City Directory*, 1912-1971.

BIBLIOGRAPHY

Documentary materials on Oldman Boiler Works and related companies is contained in the Oldman Boiler Works Papers, Buffalo and Erie County Historical Society.

Metalworking: Yesterday and Tomorrow. New York: McGraw-Hill Publications Company, 1978.

Rolt, L.T.C. *A Short History of Machine Tools.* Cambridge, MA: MIT Press, 1965.

Woodbury, Robert S. "History of the Milling Machine: A Study in Technical Development," *Studies in the History of Machine Tools*, ed. Robert S. Woodbury. Cambridge, MA: MIT Press, 1972.